

We claim:

1. A method for manufacturing a composite web comprising a perforated thermoplastic film and a nonwoven web, the method comprising:

- i. providing a perforated thermoplastic film;
- ii. providing a creped nonwoven web;
- iii. providing a mechanism for bonding the thermoplastic film and nonwoven web; and
- iv. feeding the thermoplastic film and the creped nonwoven web in a face to face relationship into the bonding mechanism such that the perforated thermoplastic film and the creped nonwoven web are bonded in a face to face relationship at a plurality of points of contact, thereby producing the composite web,

wherein the creped structure of the nonwoven web is maintained and the composite web has a nonwoven face and a perforated film face.

2. The method of claim 1 wherein the mechanism for bonding the two webs comprises a method selected from the group consisting of thermal point bonding, adhesive lamination, vacuum lamination and ultrasonic bonding.

3. The method of claim 1 wherein the thermoplastic film is elastic and has an elongation to break of at least 50%.

4. The method of claim 1 wherein providing the perforated film and providing a mechanism for bonding the webs, together comprise:

- i. providing a perforated moving screen having exterior and interior surfaces, and to which interior surface is applied a pneumatic vacuum;

- ii. providing a thermoplastic sheet, and feeding the sheet, while it is in a plastic condition, onto the exterior surface of the perforated moving screen;
- iii. providing a creped nonwoven web to the surface of the sheet that is not in contact with the moving screen in such a way that the creped nonwoven web and the sheet pass under a roller that applies a pressure to the sheet and nonwoven web together against the moving screen; and
- iv. cooling and perforating the thermoplastic sheet on the screen to form a film;

wherein the vacuum sufficient to provide bonds at a plurality of contact points between the web the film, wherein the creped nonwoven web maintains its creped structure when bonded to the film, and wherein the vacuum is sufficient to perforate the thermoplastic sheet, thereby providing a series of perforations in the thermoplastic film that is formed from the sheet, the perforations substantially conforming to the pattern of perforations on the moving screen.

5. The method of claim 1 wherein providing the perforated film, providing the creped web, and providing the mechanism for bonding the web and film together comprises:

- i. providing a perforated moving screen having exterior and interior surfaces, to which the interior surface is applied a pneumatic vacuum;
- ii. providing a thermoplastic sheet, and feeding the sheet, while it is in a plastic condition, onto the surface of the perforated moving screen;
- iii. passing a nonwoven web over a creping roll to produce a creped web in such a way that the nonwoven web is allowed to conform to the general shape of the surface of the creping roll and take on a creped

structure, without breaking the fibers or inter fiber bonds of the nonwoven web;

- iv. depositing the creped nonwoven web onto a surface of the thermoplastic sheet that is not in contact with the moving screen, while the creping roll exerts a force on the perforated moving screen and through the nonwoven web and the sheet;
- v. cooling and perforating the thermoplastic sheet on the surface of the screen to form a composite web,

wherein the force exerted by the creping roll is sufficient, in concert with the vacuum, to provide bonds at a plurality of contact points between the nonwoven web and the thermoplastic sheet, wherein the nonwoven web remains creped when bonded to the film, and wherein the vacuum is sufficient to perforate the thermoplastic sheet, thereby yielding in the film a series of perforations that substantially conform to the pattern of perforations on the moving screen.

6. The method of claim 1, further comprising:

- i. providing a second creped nonwoven web;
- ii. providing a mechanism for bonding two webs; and
- iii. feeding the second creped nonwoven web and the composite web in a face to face relationship to the mechanism for bonding whereby the second creped nonwoven web is adjacent to the perforated film face of the composite web,

wherein the second creped nonwoven web and the composite web are bonded in a face to face relationship at a plurality of points of contact, wherein the creped structure of the second nonwoven web is substantially maintained, and wherein the second creped nonwoven web has a natural

intrinsic extensibility of at least 60%, and a crepe induced extensibility of at least 25%.

7. The method of claim 6 in which the mechanism for bonding comprises a method selected from the group consisting of thermal point bonding, adhesive lamination, vacuum lamination and ultrasonic bonding.

8. The method of claim 1, further comprising:

- i. providing a mechanism for activating the web; and
- ii. passing the composite web through the mechanism for activation, thereby activating the composite web.

9. The method according to claim 1 wherein the thermoplastic film comprises an organic polymer selected from the group consisting of: polyethylene, polypropylene homopolymer, random or block copolymers of propylene with ethylene, block copolymers of styrene with butadiene, isoprene, ethylene or propylene, polyurethane, and mixtures thereof.

10. The method according to claim 1 wherein the nonwoven web comprises an organic polymer selected from the group consisting of polyethylene, polypropylene, a polyester, a polyamide, rayon, cellulose, and mixtures thereof.

11. The method according to claim 1, wherein the creped nonwoven web comprises a nonwoven web having a natural intrinsic extensibility of at least 60%, and a crepe induced extensibility of at least 25%, both extensibilities being in at least one direction.

12. The method according to claim 4 wherein the perforations in the perforated moving screen have a linear hole density of between 10 and 60 squares per lineal inch, and the moving screen has a total screen open area of between 8 and 20 percent of the total screen area.

13. The method according to claim 5 wherein the perforations in the perforated moving screen have a linear hole density of between 10 and 60 squares per lineal inch, and the moving screen has a total screen open area of between 8 and 20 percent of the total screen area.

14. A composite web prepared according to the method of claim 1.

15. A method of making a composite web comprising a thermoplastic film and a nonwoven web, the method comprising:

v. providing a thermoplastic film;

vi. providing a creped nonwoven web;

vii. providing a mechanism for bonding the thermoplastic film and nonwoven web; and

viii. feeding the thermoplastic film and the creped nonwoven web in a face to face relationship into the bonding mechanism such that the thermoplastic film and the creped nonwoven web are bonded in a face to face relationship at a plurality of points of contact, thereby producing the composite web,

wherein the creped structure of the nonwoven web is maintained and the composite web has a nonwoven face and a perforated film face.

16. The method of claim 15 wherein the mechanism for bonding the two webs comprises a method selected from the group consisting of thermal point bonding, adhesive lamination, vacuum lamination and ultrasonic bonding.

17. The method of claim 15 wherein the thermoplastic film is elastic and has an elongation to break of at least 50%.

18. The method of claim 15 wherein the thermoplastic film is a perforated thermoplastic film.

19. The method of claim 15, wherein the thermoplastic film and the creped nonwoven web are bonded to one another at the same time the thermoplastic film is perforated.
20. An elastic composite web comprising an extensible nonwoven layer and a perforated elastic layer, the perforated elastic layer being bonded at a plurality of points to the extensible nonwoven layer, wherein the perforated elastic layer has an elongation to break of at least 50%, and the extensible nonwoven layer has a crepe induced extensibility of at least 25%.
21. The composite web of claim 20 wherein the elastic layer comprises a three-dimensional apertured film.
22. The composite web of claim 20 wherein the elastic layer comprises a two-dimensional apertured film.
23. An elastic composite web comprising: a first extensible nonwoven layer; a second extensible nonwoven layer; and a perforated elastic layer positioned between the first extensible nonwoven layer and the second extensible nonwoven layer, the elastic layer being bonded at a plurality of points to the extensible nonwoven layers, wherein the elastic layer has an elongation at break of at least 50% and each nonwoven layer independently has a crepe induced extensibility of at least 25%.
24. The elastic composite web of claim 23 wherein the elastic layer comprises a three-dimensional apertured film.
25. The elastic composite web of claim 23 wherein the elastic layer comprises a two-dimensional apertured film.
26. An absorbent article comprising the composite web of claim 20.
27. The absorbent article of claim 26 wherein the elastic layer comprises a three-dimensional apertured film.

28. The absorbent article of claim 26 wherein the elastic layer comprises a two-dimensional apertured film.
29. The absorbent article of claim 26 wherein the elastic layer comprises: a first non-elastic skin layer; a second non-elastic skin layer; and an elastic core between the first and second skin layers.
30. An absorbent article comprising the composite web of claim 23.
31. The absorbent article of claim 30 wherein the elastic layer comprises a three-dimensional apertured film.
32. The absorbent article of claim 30 wherein the elastic layer comprises a two-dimensional apertured film.
33. The absorbent article of claim 30 wherein the elastic layer comprises: a first non-elastic skin layer; a second non-elastic skin layer; and an elastic core between the first and second skin layers.